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MINERAL RESERVES OF THE MALKA RIVER VALLEY

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The Malka River valley (Kabardin ASSR) is renowned for its useful mineral reserves. It has its source in glaciers of the El'brus Mountains. Its tempestuous current wears away the old granites and ultrabasic mountain rocks and lays bare gold-bearing quartz veins and primary platinum deposits. The Malka River basin is also well known for its numerous medicinal mineral springs. The celebrated "Narzanov" Valley, located southeast of Kislovodsk, is well known to all. But the chief reserves of the Malka valley are the natural alloy iron ores, which also contain chromium and nickel. These ores are not inferior in quality to the southern Ural Khalilovo deposits which have acquired fame within the Soviet Union.

As early as 1915 geologists became interested in the mineral reserves of the Malka River, but until 1929 exploratory work on the deposit was only of a sporadic nature. Geological exploration carried on here from 1929 to 1933 resulted in the discovery of great ore reserves. However, the work was not completed and industrial organizations showed no interest in this deposit for a long time. More recently, the great reserves of Malka ores, whose high grade depends on the admixture of chromium, nickel, cobalt, and other elements, have attracted the attention of the Academy of Sciences and the Ministry of Geology USSR.

Starting in 1944, N. I. Kalganov, Senior Scientific Associate of the Institute of Geological Sciences, Academy of Sciences USSR,

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and Laureate of a Stalin Prize, conducted a preliminary exploration of the iron-ore deposits and determined that the ore is deposited on both slopes of the Malka gorge for a distance of 9 to 12 kilometers. The ore stratum ranges in thickness from 2 or 3 meters to 30 meters or more. A preliminary estimate of the reserves of Malka chromium-nickel ores places them third in the world, surpassed only by deposits in Cuba and by the Khalilovo deposits.

Analyses conducted by the chemical laboratory of the institute mentioned confirmed the high grade of the ore with respect to its iron, nickel, and chromium content. Experimental smeltings conducted by V. V. Mikhaylov, Doctor of Technical Sciences and Laureate of a Stalin Prize in the Ural Branch, Academy of Sciences USSR, indicated that cast iron and foundry pig obtained from these ores are not inferior to those from Khalilovo ores, but actually surpass them in quality since they contain a very small amount of phosphorus and have a better proportion of chromium and nickel.

This year the Academy of Sciences, together with the Ministry of Geology USSR, embarked upon the complex study of the Malka iron-ore deposits. Some of the exploratory detachments, including geologists, mining engineers, metallurgists, and economists, are conducting a detailed exploration of this deposit and are determining the grade of the ores and the possibility of exploiting and utilizing them in metallurgy.

Prospects of the Malka deposits are enormous. The great reserves of high-grade chromium-nickel iron ores in combination with the large-scale Tyrny-Auz deposits of molybdenum and tungsten, located in the adjacent Baksan gorge, may be a basis for the creation of a new branch of metallurgy. Here it will be possible to produce high-grade molybdenum-chromium-nickel and tungsten cast irons and steels. The high grade of Malka ores may initiate the production of chromium-nickel cast irons and sponge iron by a method other than the blast furnace, that is, by a method of direct reduction.

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